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SUBJECT Information Concerning the Kiev-Poltava Section of the Southern Railroad System

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1. Wood ties were used exclusively on the Kiev-Poltava line, pine being used predominately and a small amount of oak. Oak ties were generally considered too expensive for overall use. All ties were delivered untreated and were creosoted by railway employees. They were not pre-bored for spikes nor were they pre-adzed for tie plates. Because most of the ties were green wood, much damage was done to them while being installed. The ties were of such poor quality that the average life was but three to five years. One factor that reduced the life of the ties was the fact that the roadbeds were made up of a mixture of sand and clay which held the moisture and caused the ties to rot quickly. This was true of both pine and oak ties.

2. The condition of ties was checked regularly by section crews and a yearly overall inspection was also made. The replacement rate was usually about 25% for main lines (averaged about four hundred ties per kilometer per year). This was not true of secondary lines and sidings where replacement requirements were disregarded and ties were replaced only if urgently needed. As a result, there were many accidents and derailments on secondary lines and sidings.

3. Officially, ties were not graded; however, the railroad would select the best ties for the main, heavily traveled lines and use the rest on sidings and secondary lines. In selecting the main line ties, the railroad looked for those with a minimum number of knots, a width of 25 centimeters and at least a thickness of 15 centimeters. However, if such measurements could not be met from the ties delivered to the railroad, they would use whatever was available. The ties would be spaced about two-thirds of a meter apart on the main lines or two ties each one and one-third meters. There were approximately 1,500 ties per kilometer on the main line and an average of 1,400 to 1,500 per

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kilometer on the secondary lines and sidings.

4. Rails were divided into four classes; type 3-A, type 3, type 3, and type 4. The latter, type 4 was an old pre-Revolution-made rail and was not found very often. Type 3 was a short, light rail on which production was discontinued or limited in quantity in the early 1930's with the introduction of the new, heavier locomotives of the S type. Type 2 was used on secondary lines where traffic was a little heavier than ordinary and on some lightly traveled main lines. Type 3A, however, was the heaviest and best rail and was used on main lines exclusively depending on the type of locomotives used (that is, the heaviest) and the density of traffic. I am unable to recall specific weights and measurements of rails, but as an average, rails were about 24 paces long. Each rail was stamped with the date of manufacture, plant name, the weight, as well as the type.

5. The technical norm set for the life of a rail was 25 years. However, there was a high percentage of defective rails and the average was lower than 25 years. Another factor which reduced the life span was the introduction of heavier engines and train loads. When rails were removed from main lines as unservicable, they were usually installed on secondary lines and sidings where they were permitted to remain indefinitely since there was no technical norm and traffic was much lighter. I never heard of rerolled rails being used. Rails were flat very quickly (about two years) on the main lines because of the rapid introduction of newer, heavier engines.

6. Coal was the only fuel used on the Kiev-Poltava line. The amount of fuel consumed depended on the type of locomotive used and the load of the train. The most common type locomotive used on the freight run was the Joseph Stalin which weighed, I believe, about 90 metric tons without tender. The distance from Kiev to Poltava was about 307 kilometers and the trip, including stops, took between 10 and 12 hours. While the technical speed norm was 15 km, the actual speed was between 30 and 35 kmph. To pull an average train of about 75 cars and a gross weight, including locomotive of 2,400 metric tons, about one car load of coal was consumed for the trip between Darnitsa and Poltava. One car load of coal weighed about 1,800 metric tons. I would like to point out that any more than 75 loaded cars or any load heavier than 2,400 mt for a train proved to be too difficult to switch and handle. Likewise, an empty train of more than two hundred cars was too cumbersome to handle. The average passenger train had from 12 to 15 cars on the Kiev-Poltava run. Various types of locomotives were used but being lighter and smaller than freight locomotives, they used less fuel. While the technical speed norm for passenger trains was 60 kmph, the actual speed was about 75 kmph. I am not familiar with actual fuel consumption figures. On the whole the degree of utilization of locomotives was very low. Attempts to alleviate the situation were made by trying other types of fuel, heavier loads (trains), extension or lengthening of sidings, use of heavier rails, and to improve the coordination of all traffic. However, all attempts to improve always failed to produce the expected results.

7. The Kiev-Poltava section was not electrified as of 1943 nor were any diesel locomotives used. For signaling, the telegraph and manual (zhezlovaya) systems were used. There was one major bridge of about 20 spans (single track), over the Dnepr River at Kiev. It was about one kilometer in length and about 20 meters above the water. This particular bridge was destroyed during World War II. Below Darnitsa two tunnels were started just before World War II under the Dnepr. Work was stopped on them during the war. I never heard of the Germans doing anything with them.

8. The hump was used at Poltava and about five freight trains were made up daily. A total of 28 to 32 freight trains passed through Poltava as an average around 1940. Being a "home depot", there were about 115 freight locomotives at Poltava, six switching locomotives and 15 passenger locomotives. Freight locomotives were of the "Shch" and "Ekho" types and passenger locomotives of the "S" and "Stalin" types.

9. The line was divided into two sections, track maintainance and repair service. Each had two sections about 150 km long and each had about five hundred workers, divided into repair teams. Each team had a technician-foreman and between 10 and 15 workers. Only about one half of the workers

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were qualified. This was due in part to the several "purges" the railroad systems went through plus the fact that punishments were severe for infractions of rules and failure to accomplish required norms, causing a large turnover in workers. This turnover in labor was solved in 1940 by freezing workers to their jobs.

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